TECHNICAL WHITE PAPER:
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VMware Cloud Foundation Cloud Maturity Model - Compute

Adoption Path for VCF 5.2

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Maturity Stage 1: Fixed Compute Resources

vSphere Cluster (No vSphere HA/DRS): Creating and Configuring Cluster

You can create clusters in the vSphere Client and then configure them manually or by using the Quickstart workflow.

- How Do You Create and Configure Clusters in the vSphere Client

Maturity Stage 2: High Availability

vSphere High Availability (HA): How vSphere HA Works

vSphere HA provides high availability for virtual machines by pooling the virtual machines and the hosts they reside on into a cluster. Hosts in the cluster are monitored and in the event of a failure, the virtual machines on a failed host are restarted on alternate hosts.

- How vSphere HA Works
- vSphere HA Admission Control
- Host Failure Types
- VM and Application Monitoring

Maturity Stage 2: Automated Workload Load Balancing

vSphere vMotion: Using vMotion and Storage vMotion

In vSphere, virtual machine migration is the process of moving a virtual machine from one resource to another resource within a vSphere infrastructure. For example, by using migration, you can change the compute resource that the virtual machine runs on.

- vSphere Virtual Machines Migration
- What is Migration with Storage vMotion
- CPU Compatibility and vSphere Enhanced vMotion Compatibility

vSphere vMotion: Cross vCenter vMotion

With Advanced Cross vCenter vMotion, you can also move or clone workloads across vCenter Server systems both between on-premises environments and between cloud and on-premises environments.

- Migrating Virtual Machines Between vCenter Server Systems

Maturity Stage 2: Automated Workload Load Balancing

Distributed Resource Scheduler (DRS): Configuring and Understanding vSphere DRS

Balance computing capacity by cluster to deliver optimized performance for hosts and virtual machines using vSphere Distributed Resource Scheduler (DRS)

- Use DRS Clusters to Manage Resources with vSphere
- Set a Custom Automation Level for a Virtual Machine
- Using Affinity Rules with vSphere DRS
- A Closer Look at the VM DRS Score

- Load Balancing Performance of DRS in vSphere

Maturity Stage 3: Resource Prioritization

Shares, Limits, and Reservations: Configure Resource Pools and Control Resource Allocations

Resource pools allow you to delegate control over resources of a host (or a cluster), but the benefits are evident when you use resource pools to compartmentalize all resources in a cluster. Use the resource allocation settings (shares, reservation, and limit) to determine the amount of CPU, memory, and storage resources provided for a virtual machine.

- Managing Resource Pools with vSphere
- Configure Your Resource Allocation Settings in vSphere
- Manage Storage I/O Resources with vSphere
- Enable Network I/O Control on a vSphere Distributed Switch
- Understanding Scalable Shares

Maturity Stage 4: Scalable Compute

SDDC Manager: Using Workload Domains

Workload domains are the building blocks of VMware Cloud Foundation infrastructure. Each VCF instance has a workload domain that runs management appliances, such as vCenter Server and NSX Manager, called the management domain. The other workload domains, known as VI Domains, are dedicated to running your applications.

- VMware Cloud Foundation - SDDC Manager Overview
- VMware Cloud Foundation - Create Workload Domain

SDDC Manager: Cluster and Host Management

Each workload domain consists of at least one vSphere cluster, which is a set of VMware ESXi hypervisor hosts. To expand capacity for applications, admins can add additional hosts to existing clusters, or they can add new clusters to a workload domain.

- VMware Cloud Foundation - Host Commissioning
- VMware Cloud Foundation - Add vSphere Cluster

Maturity Stage 5: Hardware Acceleration (GPU/DPU)

GPU Acceleration: Running GPU Accelerated Workloads

Combine the power of GPU acceleration with the mobility of virtual machines to run AI/LM workloads on vSphere.

- Configure Virtual Graphics on vSphere

- Using GPUs with Virtual Machines on vSphere: NVIDIA Virtual GPU Technology
- Using GPUs with Virtual Machines on vSphere: VMDirectPath I/O
- Improving VM Placement to Servers to Optimize Your GPU Usage
- New Tuning Settings for DRS and vMotion for VMs with Virtual GPUs

vSphere Distributed Services Engine (vDSE): NSX Network Offloads using DPUs

vSphere Distributed Services Engine(vDSE) introduces virtual infrastructure as a distributed architecture with the addition of data processing units (DPUs) also known as SmartNIC that enable offloading infrastructure functions from the host or server CPUs to data processing units (DPUs).

- What is Network Offloads Compatibility
- What is VMware vSphere Distributed Services Engine
- Using vSphere Lifecycle Manager with VMware vSphere Distributed Services Engine
- NSX on vSphere Lifecycle Manager with VMware vSphere Distributed Services Engine

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